NASA Glenn Research Center
AeroSpace Frontiers
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Plum Brook Station

Risk reduction in the SPF—a wise investment

Failure of a launch vehicle to place its payload in the proper orbit could result in huge financial losses for the aerospace industry—upwards of $300 to $500 million dollars. So, when new launch vehicle components are developed, extensive risk reduction testing is performed on the ground to reduce the chances of costly in-flight failures.

MAJOR risk reduction testing of a payload fairing for The Boeing Company's new Delta IV launch vehicle was recently conducted in the

The Delta IV payload fairing's size—47-feet tall, 5400 pounds—and the need to observe its motion over a large distance after jettisoning, necessitated the use of the SPF chamber. At 100 feet in diameter and 122 feet in height, it is the world's largest space environment simulation chamber.

A fairing is the aerodynamically shaped nose cone on the front of a rocket that protects spacecraft (often satellites) from damage as it travels up through the atmosphere at speeds ranging from 10 to 20 times the speed of sound. Once the rocket reaches a high altitude and is out of the Earth's atmosphere, the fairing separates and

CONTINUED ON PAGE 10

Photo by Chris Lynch

Boeing Delta IV fairing prior to testing inside the SPF chamber.

Governor Taft supports trades apprentice graduates

ON November 30, Ohio Governor Bob Taft showed his support for the innovative pre-apprentice machine trades training program created through Glenn's partnership with the West Side Industrial Retention and Expansion Network (WIRE-Net). Taft and Acting Deputy Center Director Gerald Barna presented certificates of completion to 11 pre-apprentices and 5 graduates of Glenn's Apprentice Program during the 2001 Graduation Ceremony held at OAI.

Taft noted the importance of skilled trades education and training a new workforce capable of competing for the high-tech, high-wage manufacturing jobs that will be critical to Ohio's future.

CONTINUED ON PAGE 12

Photo by Marvin Smith

Left to right, Acting Deputy Center Director Gerald Barna and Mike Goin, apprentice coordinator, welcome Governor Taft to the graduation ceremony.

INSIDE

Wanted: retirees to share memories, memorabilia

RETIREES employed at the Center anytime from its beginning as the National Advisory Committee for Aeronautics' (NACA) Aircraft Engine Research Laboratory in 1941 up to the present day are a vital resource for the Center's History Office—now more than ever.

In 2003, the Center will participate in the Inventing Flight celebrations in Dayton, OH, commemorating the 100th anniversary of the Wright Brothers' achievements. To support this event, the History Office, Logistics and Technical Information Division (LTID), is undertaking the major project of creating a comprehensive timeline of Center employees' contributions to flight.

Glenn Historian Bonnie Smith, IDI/LTID, explained that there is much about the Center that is generally unknown. Therefore, it is hoped that retirees can help fill in the missing links on the NACA/Lewis/Glenn history timeline.

"We're asking retirees to recall major milestones and achievements—eureka's, inventions, inventors, equipment, tests, flights, launches, facilities—that NASA Cleveland contributed to flight," Smith said. "Retiree's mementos would also be treasured. Pictures, memos, and other documents that are lent to the History Office will help verify historical facts."

A web site showing the information accumulated and a toll-free telephone number to contact the History Office will be published in a future issue of *AeroSpace Frontiers*. ◆

Smith can be contacted at 216-433-5765, Bonita.S.Smith@grc.nasa.gov

NEWS NOTES

BLACK HISTORY OBSERVANCE: The 2002 Black History Month Observance will feature Thomas N. Todd, an attorney from Chicago, as its keynote speaker on Thurs., Feb. 14 at 9:00 a.m. in the

LESA MEETING: LESA/IFPTE, Local 28, will hold its monthly membership meeting on Wed., Jan. 9 at noon in

AFGE MEETING: AFGE Local 2182, will hold its monthly membership meeting on Wed., Feb. 6 can and at 4:30 p.m. All members are encouraged to attend.

FRAUD HOTLINE: Aware of waste, fraud, or abuse? Contact the Office of the Inspector General at 433-5592 or Confidentiality maintained.

Exchange Corner

The long-awaited event is finally here. Help celebrate the Grand Reopening of the Main Cafeteria with special giveaways and events the week of January 14.

One of the enhancements of the Main Cafeteria is extended hours. It will remain open until 5:30 p.m., Mondays through Fridays for late afternoon snacks, sandwiches, entrees, pizza, and ice cream. The Deli area will also be open until 5:30 p.m. with convenient take-home items.

For more information on the Grand Reopening, visit the web site: *http://cfo.grc.nasa.gov/newexch/*

***AeroSpace Frontiers* would like to thank those who provided us with information on retirees who died over the past year. Extensive records of individual accomplishments are not always available. Therefore, your input is vital.**

IN MEMORY

Howard Douglass, 78, who retired in 1980 as chief of the Space Propulsion and Power Division, recently died. In 1980, he received the Wyld Propulsion Award and Medal, the highest honor of the American Institute of Aeronautics and Astronautics. Douglass created designs and tests that led to the world's first hydrogen-oxygen rocket engine systems that have been used in the Space Shuttle and Centaur rockets.

Michael Mytrysak, 87, who retired after 30 years of service in 1973, recently died. He worked as an aerospace mechanic foreman in the 8 by 6 Wind Tunnel in .

James Prewitt, 91, who retired after 31 years of service in 1974, recently died. He worked as an aerospace mechanic.

AeroSpace Frontiers is an official publication of Glenn Research Center, National Aeronautics and Space Administration. It is published the first Friday of each month by the Community and Media Relations Office in the interest of the Glenn workforce, retirees, government officials, business leaders, and the general public. Its circulation is approximately 6,700.

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DEADLINES: News items and brief announcements for publication in the Feb. issue must be received by noon, Thurs., Jan. 10. The deadline for the March issue is noon, Thurs., Feb. 7. Submit contributions to the editor via e-mail doreen.zudell@grc.nasa.gov, fax (216) 433-8143, phone (216) 433-5317 or (216) 433-2888, or Ideas for news stories are welcome but will be published as space allows.

INSIDE A TEST CELL

In February, *AeroSpace Frontiers* begins a monthly column that will offer a glimpse of our test cells. See how Glenn's workforce expertise and world-class facilities impact technological advancement on Earth and in space.

RETIREMENTS

Johns

Mularz

Chuck Johns, Vehicle Technology Directorate, retired August 3, 2001, with 33 years of combined Army and Navy service.

Dr. Edward Mularz, Vehicle Technology Directorate, retired July 14, 2001, with 30 years of Army service.

IN APPRECIATION

My family and I want to express our gratitude for the kindness, understanding, and prayers of all my coworkers during my father's illness and death. Your support helped us during this time of grief. Thank you.

—Bernadette Kan

In November, the Business and Professional Women, Glenn Chapter, collected articles of women's clothing to benefit the West Side Ecumenical Ministry Worker's Network Program. The donated clothing will help women in need enter the workforce. Your generosity is greatly appreciated.

—Suzanne Aldrich
BPW 1st Vice President

I would like to thank my friends and coworkers for their sympathy and support at the loss of my mother and my father's continuing battle with lung cancer. Your caring means a great deal to me and my family.

—John D. Wolter

Director's Corner

with DONALD CAMPBELL

New beginnings

The best way to predict your future is to create it.
–Author Unknown

WITH the changing of the calendar many of us reflect on past successes and accomplishments, and look forward to the promise of the New Year. I believe 2002 will offer many opportunities for the Agency—and for Glenn.

To begin, we will soon welcome a new administrator. Mr. Sean O'Keefe, who previously served as deputy director of the Office of Management and Budget, is well-versed in forming successful working relationships between presidential administrations and federal agencies. In 1992, he was appointed secretary of the Navy by then President George Bush and had previously served as comptroller and chief financial officer of the Department of Defense. He was also on the staff of the U.S. Senate Committee on Appropriations for 8 years, and was staff director of the Defense Appropriations Subcommittee.

There's also good news in the NASA budget. In November, President George W. Bush signed a bill to restore funding to Glenn's FY02 budget. This brings Glenn back to previous funding levels, enables us to maintain a steady course of excellence, and provides avenues to explore other cutting-edge technologies.

Among these technologies, the Ultra-Efficient Engine Technology Program will continue to be a vital Agency aeronautics program. This will provide revolutionary research to enable important engine efficiency and emission reduction for commercial and military aircraft of the future. Glenn also plays a key role in the Space Launch Initiative (2nd Generation Reusable Launch Vehicle). Approved and implemented in FY01, it represents the Agency's third priority overall (after Space Shuttle safety and the International Space Station) and a planned investment of nearly $4 to 5 billion over 6 years. Meanwhile, the unique, world-class facilities of Plum Brook Station continue to provide critical risk reduction testing for major national and international aerospace programs. All four of its test facilities are scheduled for significant utilization during 2002.

This year, with the combination of programs and projects and the appropriate funding levels, we have the opportunity to meet or exceed Center objectives and Agency goals. I'm encouraged about the Center's future and the potential for future contributions to the Agency and the Nation. Much of this success, however, will depend on the continued sense of purpose and accomplishment that has been demonstrated by employees across this Center. This talent, creativity, and resourcefulness will guide us through the year and ensure our place as a premier Center in the Agency.

in the headlines

noise reduction goals

The first annual AeroAcoustic Research Consortium meeting was held on Nov. 29 at OAI. More than 70 world-class researchers in aeroacoustics reviewed recent work involving aircraft engine noise. Discussions led to a better understanding of differing opinions among the technical community, which include Glenn and Consortium member companies. Significant advances in analytical and computational methods are leading to improved noise prediction methods. It is hoped that these tools will guide the discovery of new noise reduction techniques. By concentrating on fundamental problems, the Consortium has aligned companies that are competitors with a common goal of noise reduction.

Photo by Katherine Martin

Left to right: Krishna Viswanathan, Boeing; David Reed, Boeing; Jay Panda, OAI; and Philip Morris, Penn State, were among top researchers attending as Consortium representatives.

Photo by Marvin Smith

sustaining a lifestyle

The ability to inhabit an area and sustain a living over time depends on an intimate understanding of the relationship between humans and the ecosystem, and the need to maintain that balance, explained Winona LaDuke, a member of the Mississippi Band Anishinabeg. In her keynote address for the 2001 Glenn Native American Observance held Dec. 13 in , LaDuke, founding director for White Earth Land Recovery Project, spoke about the importance of restoring land to indigenous societies and incorporating their knowledge of "Minobimaatisiiwin" or "continuous rebirth" in an environmental management plan for development that will sustain all its inhabitants. Pictured left, Lakota Traditional Arts (with South Dakota and Cleveland locations) authentic Native American art, jewelry, and other items on display in the lobby.

Photo by Lori Manthey

Astronaut Candidate Michael T. Good looks on as "young astronauts" work on a toothpick tower, one of seven challenging activities conducted at CWRU.

aspiring astronauts

Over 400 Northeast Ohio K-12 students, parents, and NASA volunteers gathered on the Case Western Reserve University (CWRU) campus for Glenn's 9th annual Young Astronaut's Day on Nov. 17. The day was devoted to engineering and scientific experiments, games, and projects including toothpick towers, LEGO disasters, macaroni mobiles, seltzer rockets, an airplane design contest, and a solar car race. A presentation by Glenn's Ultra-Efficient Engine Technology Program Manager Robert "Joe" Shaw offered something for everyone. An additional highlight was a brief talk by Astronaut Michael J. Foreman and astronaut candidate Michael T. Good who both participated and gave autographs. The event was cosponsored by Glenn, CWRU's School of Engineering, and Northern Ohio American Institute of Aeronautics and Astronautics.

in the headlines

dressed for success

Photo by Doreen Zudell

NASA Glenn BPW members (pictured left to right) Suzanne Aldrich (7535), Erline Trsek (7130), and Katherine Martin (2300) sort through work-appropriate clothing during their "Clothing for Career-Bound Women Drive." Glenn's chapter of Business and Professional Women collected over 250 articles of women's clothing to benefit the West Side Ecumenical Ministry Workers' Network Program. All donated clothing will help women in need as they enter the workforce.

people on the move

transitions

Christopher Kennedy has been named chief, Logistics and Technical Information Division (LTID). Kennedy has served in a number of management positions during his 20-year career at Glenn, most recently as deputy chief of LTID. He has clearly demonstrated a superior ability to direct a multifaceted organization. Kennedy has exceptional communication skills, and strives continually to help his staff identify strategies to provide outstanding technical and logistics information services to the Center.

Collins

Kennedy

Amy Young has joined the Office of the Director (0100) as management support assistant. She is assisting **Myrtle Collins**, who is office support assistant in 0100. Young will aid Collins and other clerical support staff members in 0100 over the next few months until she transitions into the Office of Diversity.

Young

employee suggestion award

Employees continue to share their creativity by contributing to the efficiency and economy of the Center.

Philip Beck (not pictured) Manufacturing Engineering Division, was recently recognized in the Employee Suggestion Award Program. Beck suggested using a spray mask for use in micro-machining applications that will prevent marring of finished surfaces when subsequent machining is required.

For information about the Employee Suggestion Award Program, visit the web site at: http://www.grc.nasa.gov/WWW/OHRS/Suggestion/

Extending a hand, expanding horizons

WHEN the 2002 FIRST (For the Inspiration and Recognition of Science and Technology) Robotics Competition kicks off this month, Glenn will be expanding its sponsorship and the horizons of 23 teams across 5 states—18 more than last year.

"A total of $170,000 in grants was awarded to 23 schools that met our application requirements," explained Jo Ann Charleston, chief, Office of Educational Programs (OEP). "Our increase in sponsorship is a reflection of the Center and Agency's commitment to FIRST and its success in convincing America's youth on the value, rewards, and excitement of engineering and technology."

Unlike the past 6 years of sponsorship, Glenn engineers and technicians will not build a robot on-site. Instead, much of their effort and that of a multitude of volunteers will be devoted to hosting the first NASA Glenn Buckeye Regional, to be held March 14-16 at the

Glenn is one of five NASA centers hosting regional competitions, which offers a more affordable opportunity (in terms of travel and accommodations) for nearby rookie and veteran teams to test their robotic strategy prior to the national competition held

in April.

"Our goal in sponsoring the regional competition is to attract more participation from local high schools, universities, and businesses in an effort to help build a technology base for the Cleveland area," said Carol Galica, IDI/OEP Glenn's Buckeye Regional program manager. ◆

Anyone interested in learning more about FIRST or Glenn's Buckeye Regional should visit the web site: http://www.grc.nasa.gov/WWW/OEP/first/regional

NASA GLENN 2001 YEAR IN REVIEW

Glenn earned four *R&D 100 Awards*, bringing the Center's total to 81 out of 116 awards presented across the Agency—the most of any Center. This year's awardees included: *Ring-Cusp Ion Engine, Environment Conscious Ceramics (Ecoceramics), Long-Life High Temperature Ceramic Environment Barrier Coating, and Sylamic-iBN fiber.*

With each directorate surpassing its goal, this was a record-breaking year for Glenn's Combined Federal Campaign. Overall participation was 62.5 percent, the highest ever in the Center's history. This generosity enabled Glenn to exceed its goal of $353,000 for a total of $409,000!

Senator John Glenn and his wife, Annie, joined Center employees, retirees, and honored guests in the Hangar on September 7 to recognize 60 years of technological accomplishments at the Center. The celebration included artifacts, vintage aircraft and cars, activities simulating tumble-type maneuvers, and refreshments.

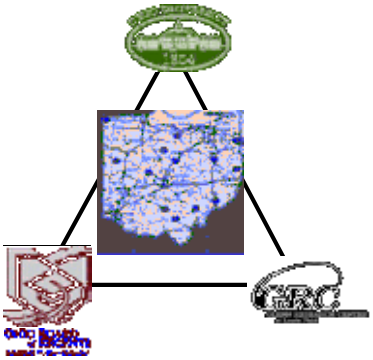
The Center received several exceptional awards this year, some of which included the Edison Award (pictured), Cleveland Advanced Manufacturing Program Award, six Turning Goals into Reality awards, Northcoast '99 Award, and the Urban League of Greater Cleveland Corporate Excellence Award.

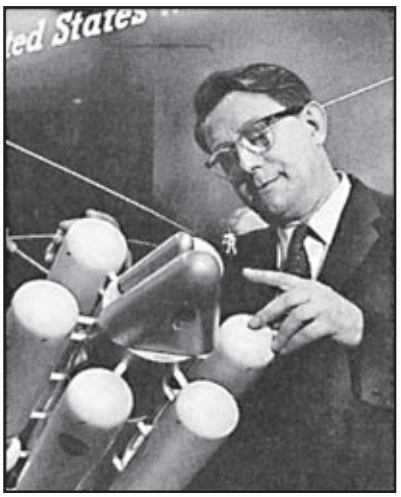
For the first time in 40 years, a new aircraft ice protection system has been approved by the Federal Aviation Administration. Glenn supported the development of the ice protection system through its Small Business Innovation Research funding program and through technical and testing support of Glenn researchers.

The NASA Software Advisory Panel selected Glenn's Numerical Propulsion System Simulation as co-winner of the *Software of the Year Award 2001*. Considered a world-class propulsion system simulation tool, NPSS Version 1 has become an emerging U.S. standard for aerospace simulations, built and maintained with the full interaction of every major aircraft engine manufacturer in the United States.

In May, science teams at Glenn began monitoring and commanding their own International Space Station experiments for the first time through the newly renovated Telescience Support Center, located in

An exciting new chapter in space communications began with the signing of a Space Act Agreement among Glenn, the Ohio Board of Regents, Columbus, and Ohio University, Athens, for the use of NASA's Advanced Communications Technology Satellite (ACTS). The agreement established a national educational consortium that will assume the operational management of ACTS.





One of the most prolific minds of 20th century aviation passed away on June 4. Dr. Abe Silverstein, a founding member of the National Aeronautics and Space Administration and former director of Lewis (Glenn) Research Center (1961-1969), was also a recruiter of great talent who inspired people to achieve great deeds.

In response to Executive Order 13148, *Greening the Government through Leadership and Environmental Management*, Glenn tested and implemented the NASA-wide ISO 14001-based Environmental Management System. This comprehensive approach focuses on prevention and action instead of reaction to command and control policies.

In April, Glenn's GRUVE (Glenn Reconfiguration User interface Virtual reality Environment) Lab opened its doors in It features an advanced display system called the RAVE (Reconfigurable Advanced Visualization Environment), a virtual reality device that brings scientific data to life.

Center employees showed their support and patriotism in 2001 by attending two events—Prisoners of War Missing In Action National Recognition Day in July and Veteran's Day in November. Patriotic songs, dramatic readings, posting and retrieving of colors, and processions that included Glenn veterans/reservists and Lewis Little Folk's kindergarten class highlighted the events.

On May 31, Lewis Little Folks, Glenn's on-site day care center, received accreditation from the National Association for the Education of Young Children, the most widely recognized national, voluntary, and professionally sponsored accreditation system for early childhood schools.

Decommissioning team on task

WHILE awaiting the National Regulatory Commission's (NRC) approval of the decommissioning plan for Plum Brook Station's Reactor Facility, NASA has engaged a small crew of highly specialized, trained workers to perform several pre-decommissioning activities. This includes inventory and characterization of loose and fixed equipment in various areas of the Reactor Facility.

"NASA will proceed with decommissioning in a safe, controlled manner once the NRC approves our Decommissioning Plan. Until then, we continue to make preparations and perform pre-Decommissioning activities and characterization," said Tim Polich, project manager. "This coming year our goal is to remove the core internals and other Class C waste from Hot Dry Storage."

Over the past quarter, the team completed an investigation of the "Hot Dry Storage" area within the Reactor Facility that involved using remote cameras to perform visual inventory and to determine its physical condition. After building 25-feet high scaffolding units, the team completed the first phase of inventory and characterization of loose equipment in the Reactor Facility containment vessel quadrants and canals. The scaffolding enabled them to take swipe samples to determine loose contamination levels and direct readings to examine the specific type and amount of individual isotopes present. The results of these investigations will be used to determine the correct packaging for eventual transport and disposal of hazardous materials offsite.

In addition to the above activities, the team implemented a comprehensive monitoring program, which includes weekly air sampling at a series of six air monitors located within the Reactor Facility and the Plum Brook fence line. The weekly air sampling, which began in May, will continue throughout decommissioning. In addition, NASA is collecting monthly surface water, groundwater, and sediment samples. To date, all results are within normal levels.

Keeping the lines of communication open between NASA and the surrounding community is paramount in the decommissioning process. Public forums, a community work group, and literature handouts are used regularly to meet this goal.

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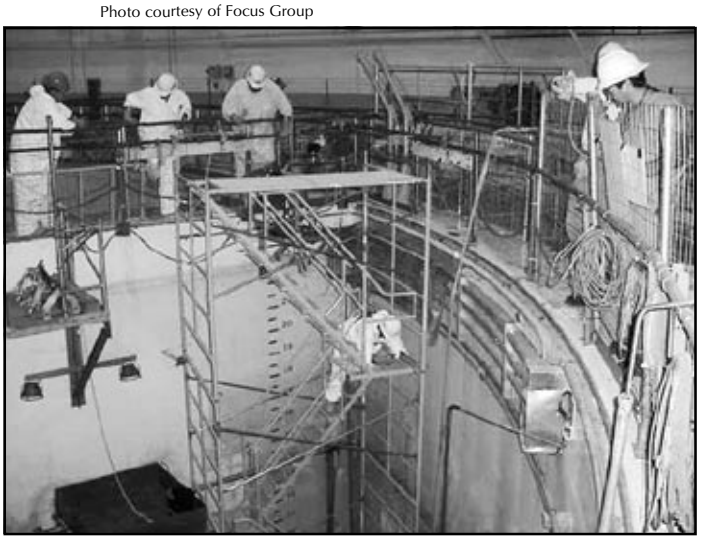
Photo courtesy of Focus Group



Scaffolding was installed to create a staircase to enable better access to the work area.

Retiree Spotlight

Quick thinking

Real-life heroes don't wear capes and use ray guns. Some of them, like retiree Dennis Munson, wear jeans and use their bare hands.

BY DOREEN B. ZUDELL

OCTOBER 29, 2001, was far from a typical day for Glenn retiree Dennis Munson, who works as a stock replenisher at Sears in Middleburg Heights, OH. That morning, the department store's basement warehouse became the scene of a life-threatening blaze and Munson became a human fire extinguisher.

"I had just filled my cart with stock and was headed out of the warehouse when I felt a surge of hot air on my back and saw a huge ball of fire out of the corner of my eye," Munson explained.

Munson spun around in the darkness to see two electricians illuminated by flames just 20 feet away. In shock, the two stood like stick figures, one of them shrieking in pain, as the flames began to engulf them. With just seconds to react, Munson shouted for someone to call 911. He then plunged through a cloud of smoke toward the burning figures and furiously began patting out the flames with his bare hands.

"I guess my instincts kicked in," Munson said. "All I knew was that I had to stop the fire from burning their bodies."

Shortly after Munson put out the flames, a few other workers arrived with an extinguisher to douse the fire that was still blazing from switchgear on the wall. Rescue vehicles arrived on the scene and took Munson and several others to nearby hospitals where they were treated for smoke inhalation and minor injuries. The two burn victims were transported to Metro Health's Burn Center with second and third degree burns on 20 and 60 percent of their bodies.

"The fact that my only injury was the loss of some hairs on one of my little fingers was miraculous," Munson confessed. "I truly believe that 'divine intervention' helped me through the frightening experience."

Munson, who worked as an electrician and electrical dispatcher before retiring from Glenn in 1989, said he had never experienced a crisis of this magnitude during his 27 years at the Center.

"I don't know if I was in the right place at the right time or if I was meant to be there," Munson said. "In any case, I like to think of it as one electrician helping two others." ◆

Events link employees to outreach opportunities

BY DOREEN B. ZUDELL

HOW do we ensure that NASA's customers learn about the Agency's research and development efforts? Two recent events—*K-12 Education & Public Outreach Workshop* and *Outreach Resources and Opportunities Fair*—are positive steps toward this goal.

Sponsored by the Office of Educational Programs (OEP), the Space Science Institute conducted the two-day *K-12 Education & Public Outreach Workshop,* November 14 and 15, which focused on Science Education Reform and facilitating more active and effective involvement in K-12 education. A local education consultant and two Glenn engineers (Dennis Fox and Dr. Gary Roberts, Materials Division) were on the workshop design team and also gave presentations. Topics were National Science Standards, the status of Ohio Science Standards and Proficiency tests, and inquiry-based versus hands-on teaching. A special "Meet the Teachers" activity paired teachers with Glenn scientists and engineers to discuss outreach challenges.

"The attendees were employees who are doing outreach as well as those who want to become involved," said Janet Storti, OEP's special assistant for Educational Initiatives, who was on the design team and coordinated the workshop. "The two days provided a stronger link between OEP and organizations and individuals at the Center who do outreach. It also enabled us to demonstrate how OEP can provide guidance in developing educational outreach plans."

A key element in the workshop centered on three ways employees can participate in public outreach: 1) Advocate—inspire, encourage, and empower others in their educational outreach efforts; 2) Resource—help when called upon and generally make resources and facilities available to others; and 3) Partner—work shoulder-to-shoulder with outreach specialists and directly with the public.

Photo by Doreen B. Zudell

Shedrick Rodgers (seated), Visitor Center docent lecturer, discusses outreach opportunities with Xuan Nguyen, Microgravity Science Division, during the Outreach Resources and Opportunities Fair.

Building on the momentum generated from the workshop and the three ways of participation, OEP and the Community and Media Relations Office (CMRO) cosponsored the *Outreach Resources and Opportunities Fair* the following day. The fair, held from 11 a.m. to 3 p.m. in the Visitor Center, provided a "one-stop" opportunity for employees to learn about Glenn's areas of outreach.

Representatives from more than 30 outreach programs (mostly from OEP and CMRO with the rest from organization that have formal education agreements with OEP) displayed informational material and answered questions about their activities. The Educator Resource Center, National Engineer's Week, Speaker's Bureau, and the Ultra-Efficient Engine Technology Program were among the activities represented.

"The idea to hold the fair came to us through the Employee Suggestion Award Program," explained Pamelia Caswell, CMRO, and Sylvia Owens, OEP, co-chairs of the fair. "The suggesters said they had been surprised, after they became active in outreach activities, at the information and support OEP and CMRO give to non-9000 employees who participate in outreach. They thought that if others knew more about the programs and support, they would be more likely to become involved."

Caswell said that based on comments at the fair and evaluation sheets, the event was well-received. Marie Borowski, OEP, affirmed the fair's value. "In just a few hours, I recruited 12 new mentors for the Shadowing Program," she said.

With more than 150 employees attending both outreach events, committee members were able to offer knowledge, options, opportunities, and resources for outreach activities. ◆

Decommissioning update

CONTINUED FROM PAGE 8

Upcoming activities include:

- ❒ Community Workgroup meeting, Tuesday, January 15 at 7 p.m. at
- ❒ The second edition of NASA's quarterly decommissioning newsletter will be available this month.
- ❒ Decommissioning web site is back on-line, although some material has been removed to adhere to NASA security requirements.

"Safety is the number one priority in this decommissioning project and the effective communication of our risk management activities to all parties involved will be the key ingredient to our success," said V. William Wessel, director, Office of Safety and Assurance Technologies. ◆

Delta IV fairing tested

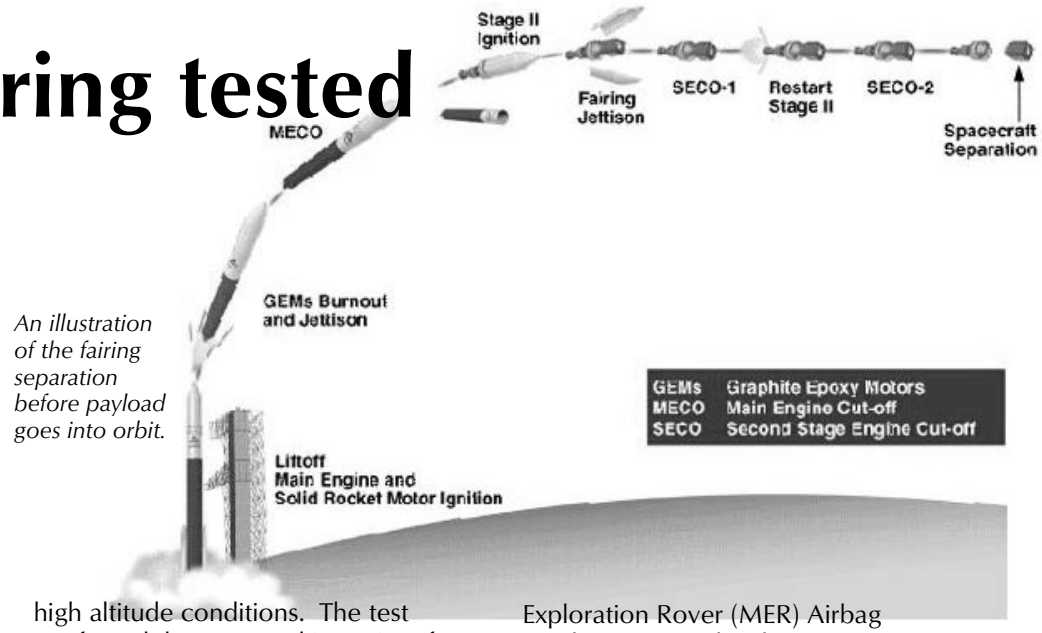
CONTINUED FROM PAGE 1

falls away from the vehicle to shed the excess weight and to expose the payload for orbital insertion. If it fails to separate from the launch vehicle, the entire mission will be lost since the added weight of the fairing will drag the launch vehicle off course, and eventually back into the Earth's atmosphere where it will be destroyed.

Jerry Carek, SPF facility manager, explained that special handling procedures and equipment were employed to ensure a successful simulation of the Delta IV test.

"Pyrotechnic devices (which induce fairing separation) were strategically placed between the fairing's clam-like shells," Carek said. "Within the 300 milliseconds it takes for the explosion, special rigging similar to what mountain climbers use catch the shells before they hit the chamber walls, and pneumatic actuators pull down each fairing segment to simulate the acceleration of the launch vehicle."

On December 12, the Delta IV payload fairing was successfully jettisoned in the SPF under simulated high altitude conditions. The test confirmed the structural integrity of the fairing hardware during the separation event. It also measured the fairing dynamic motion in order to correlate this data with analytic models. Finally, the test verified that spacecraft interface shock requirements were met during the separation event. Tests were conducted for Boeing on a "full cost recovery" basis.



An illustration of the fairing separation before payload goes into orbit.

Bob Kozar, chief, Plum Brook Management Office, said that Glenn will continue to use its unique, world-class test facilities at Plum Brook to support essential risk reduction efforts for NASA, other Government agencies, and the private sector. Currently, the SPF is preparing for NASA's Mars Exploration Rover (MER) Airbag Landing System development tests. From February through June, the SPF will be used to conduct payload fairing separation tests for the new Lockheed Martin Atlas V Launch Vehicle. Immediately following the Atlas V tests, SPF will be used again for MER certification tests, well into 2003.

"The United States is fortunate to have these unique test facilities located at Plum Brook," Kozar said. "The facility plays an important role in reducing the risk of failure for critical national aerospace programs. Ground testing is a wise investment." ◆

Changes enhance Center BMS

THE New Year brings changes for the Center's Business Management System (BMS) in a number of areas, including a new registrar, a revised ISO 9000 standard, changes in the internal audit process, and improvements to the Corrective and Preventive Action Reporting System (CPARS).

In April, National Quality Assurance (NQA), USA, becomes Glenn's new ISO 9000 registrar. NQA will first conduct a site visit and document review, then follow up about a month later with a pre-assessment audit to evaluate the Center's readiness for the revised ISO 9000 standard.

In August, a certification audit will be conducted, as the 3-year certification the Center earned in September 1999 will expire. This will involve multiple auditors over multiple days.

"The revised standard does not remove any requirements of the previous version; however, it imposes some new requirements," said BMS/ISO Technical Lead Karen Meinert. "Additional requirements in leadership, customer focus, and continual improvement now make the standard similar to other national quality management awards such as the Malcolm Baldridge."

Changes in the internal audit process will incorporate lessons learned from last year and the additional focus areas of the new standard. Among the upcoming enhancements to CPARS is the integration of the Employee Suggestion Award Program, which will be coming early this year. Users should find the web-based system more convenient.

"I see all of these changes as having positive effects in improving the BMS and in fulfilling the commitments of our Center Quality Policy," said Olga González-Sanabria, senior management representative for the ISO project. ◆

Behind the Badge...

a closer look at our colleagues

Mary Jo Long-Davis

Job Assignment: I am a project manager in the High Speed Systems Office managing projects for the Ultra-Efficient Engine Technology and Aerospace Propulsion & Power Base Programs.
Time at Glenn: I have been working at Glenn for 12 years.
Hometown: I was born and raised in Akron, OH, and I now
Describe your family: Nine years ago I married my best friend, Bob Davis. We have a 5-year old son, Russell.
Career alternative: Project manager overseeing new house construction or costume designer.
Favorite book or magazine: *Don't Sweat the Small Stuff* and *It's All Small Stuff* by Richard Carlson.
Favorite movie or play: I like all kinds of movies. My favorite feel-good movie is *It's a Wonderful Life* and my favorite drama is *Schindler's List*—both depict the impact that one person can have on the lives of those around him.
Activities when away from Glenn: I spend my time away from work trying to be the best mom, wife, and daughter I can be—while occasionally squeezing in movie-going, sewing, and home decorating.
What do you like best about your job at Glenn: As a project manager, the best part of my job is when I see the results of advanced technologies being developed by the dedicated, creative, and extremely talented people at this Center—in spite of the numerous uncertainties/challenges we constantly struggle with in the programs (e.g., fiscal and political). I'm proud to be a small part of it.

James Vaughn

Job Assignment: I'm president of JDD, Inc. We are an on-site contractor for Glenn providing facilities maintenance support including carpentry, small roof repairs, signs, painting, janitorial, small-scale asbestos abatement and lead paint removal, carpet installations, and some drafting services. We will soon offer a design/build service as well. As company president, along with our project manager and supervisors, I am responsible for the day-to-day operations of the above mentioned areas.
Time at Glenn: I've worked at the Center over the past 15 years including 11 years in various positions with the Colejohn contract; 3 years subcontracting with Call Henry, Inc.; and 1 year as the prime contractor for Glenn's janitorial contract.
Hometown:
Describe your family: I've been married for 23 years to my wife, Bonnie. We have a son James III, a senior at the University of Cincinnati; a daughter, Demetria, a sophomore at Denison University; and a son, Dexter, a high school freshman at University School.
Career alternative: For years I have dreamed of being an Ohio State Trooper. It's a job that can be both demanding and rewarding. It is a first-class operation.
Favorite book or magazine: The *Left Behind Series*, a fictional novel series based on the *Bible's Book of Revelations* and the "last days" prior to and during Armageddon.
Person you most admire: My wife for her endurance and ability to remain strong through tough times.
Activities when away from Glenn: I'm a baseball coach and I do other volunteer work.
What do you like best about your job at Glenn: I enjoy the diversity of people and cultures all working together towards a common goal.

Graphic by Kelly Shankland

Issue Date	Deadline
February 1, 2002	January 10
March 1, 2002	February 7
April 5, 2002	March 15
May 3, 2002	April 12
June 7, 2002	May 24

AeroSpace Frontiers *2002* Deadlines

News Notes, In Appreciation, and In Memory

Issue Date	Deadline
July 5, 2002	June 13
August 2, 2002	July 12
September 6, 2002	August 15
October 4, 2002	September 13
November 1, 2002	October 11
December 6, 2002	November 7

Workforce for the future

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"Many of our skilled workers are nearing retirement age, and if we don't train the new workers for the 21st century, those jobs will go to other states," Taft said. "So I applaud the Pre-apprentice Program, the Apprentice Program, and the individuals who have completed them. You are becoming a part of a great tradition—one that uses brainpower, knowledge, and skills to make an outstanding contribution to Ohio's technology pipeline to the global market place."

Glenn recently received a *2001 Trailblazer Award* in recognition of the Pre-apprentice Program's success. The National Network of Sector Partners, an organization dedicated to improving employment and economic development opportunities for low-income individuals, families, and communities, presents *Trailblazer* awards annually.

Michael Goin, apprentice coordinator in the Office of Human Resources, explained that criteria for acceptance into the Glenn Pre-apprentice Program are rigorous. Candidates must demonstrate aptitude, attitude, and compliance with federal economic guidelines.

"After an extensive interviewing process, the candidates participate in an orientation that requires family attendance," Goin said. "Sometimes it's a challenge to stay focused, so it's important to have the family 'buy into' the candidate's time commitment and help that person stick to the goal."

Photo by Marvin Smith

Graduates, managers, and distinguished guests, seated up front, listen to Governor Taft's address in the OAI auditorium.

The intensive 32-week Pre-appentice Program involves classroom training in mathematics, shop theory, blueprint reading, and life skills. However, primary emphasis is on acquiring shop floor skills in bench work, lathe and milling operations, surface grinding, and drill press operation. Completing the program is the first step in becoming a machine operator, a precision machinist, or a tool and die maker. Graduates also earn certification from the National Institute for Metalworking Skills, Inc.

Pre-apprentice graduates may apply for 4-year apprenticeships in the machine trades, or pursue careers without further training. The five members of the 46th class of Glenn's Apprentice Program have already paid their dues. By completing the advanced training Glenn has afforded them, they are now ready to join the Center's workforce in skilled trade areas to pursue independent projects and opportunities for advancement. ◆

Apprenticeship graduates include: Philip Bastian, Sandra Buettner, Michael Grier, Valarie Roundtree, and Angela Surgenor. Pre-apprenticeship graduates include: Angelito Arellano, Ernest Bass, Mario Crayton, David Embry, Paula Goodman, Todd Jewitt, Daniel Lilly, Michelle Lyons, Jessica Santos, Stephen Skaggs, and Christopher Webb.

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